

## **Shayan Chowdhury**

AI, Public Health Policy, Social Entrepreneurship    LinkedIn: [shayanhchowdhury](#)    Website: [shayan.tech](#)    Email: [sc4040@columbia.edu](mailto:sc4040@columbia.edu)

**EDUCATION:** [Columbia University, NY](#): BA in Info/Computer Science & Public Policy

GPA: 3.98, Dean's List, Exp Grad: 2025

Relevant Coursework: Applied Data Science, Advanced Machine Learning Projects, Computer Applications in Health Care & Biomedicine, Artificial Intelligence, LLM Foundations and Ethics, Environmental Data Analysis, Intro to Human Rights

High School: Stuyvesant High School, New York, NY

## **RESEARCH EXPERIENCE**

**Research Trainee, [Artificial Intelligence in Medicine Program, Harvard Medical School, Boston, MA](#)**

January 2024 – present

- **Building AI models** for risk assessment and triage in diseases like cancer, aimed at informing public health policy and reducing the burden on healthcare systems, **advised by Dr. Danielle Bitterman** under the Radiation Oncology department
- **Leading development of custom NLP methods**, such as adapting the preference optimization algorithm ORPO to enhance the quality of synthetic medical data, improving the fine-tuning of medical AI models and optimizing their applicability in clinical settings
- **Authoring a paper** on how **medical LLMs fine-tuned on synthetic patient data outperform** those trained on gold-labeled data

**Researcher, [Department of Computer Science, Columbia University, New York](#)**

September 2023 – present

- **Developing and applying machine learning (ML) classifiers** to **identify hotspots of foodborne illness** outbreaks in restaurants, enhancing the ability to predict and prevent future outbreaks, **advised by Prof. Luis Gravano**
- **Collaborating closely with the NYC Department of Health and Mental Hygiene (DOHMH)** to **translate research findings into actionable insights**, directly influencing public health policies and improving community health outcomes
- **Second authored paper** on findings presented at the **2024 International Conference on Social Media & Society** in London, UK

**Director of Mentorship & Education, [CoVisualize, Harvard University, Cambridge, MA](#)**

October 2022 – present

- **Mentoring students** on research, data analysis, AI, and technical writing + **connecting 200+ students to PIs** at Columbia, Harvard, etc.

**Research Technician, [Fifer Lab, Columbia University Irving Medical Center, New York](#)**

August 2021 – September 2023

- **Developed adaptations to improve access to low-cost technologies** for preventing fetal miscarriages and stillbirths, with a focus on **low- and middle-income countries (LMICs)** like India and South Africa and their local healthcare settings
- **Built self-supervised ML models** w/ TensorFlow for real-time clinical analysis of fetal + maternal electrocardiogram (ECG) data
- Developed and published a signal processing algorithm to analyze fetal ECG signals for high-risk diabetes patients, resulting in enhanced monitoring and early intervention to prevent the onset of neurodevelopmental disorders in newborns (*see publications below*)

**Lead Data Analyst, [azi Programme, ICT Ministry / Cabinet Division / UNDP Bangladesh](#)**

March 2020 – January 2022

- **Appointed** to the National COVID-19 Policy Dashboard Committee of the Bangladesh Government for the **Ministries of Health and IT**
- **Led development on COVID-19 data pipelines** from syndromic surveillance via national call centers to near-real-time info from hospitals
- **Developed statistical models** to predict spread and **inform public policy** on lockdowns, public health comms and healthcare decisions
- **Analyzed data** on tests, cases, deaths, hospitalizations, and mobility, and **led presentations on policy recommendations** to the Directorate General of Health Services, Institute of Epidemiology, and **up to the Prime Minister** alongside a team of epidemiologists, researchers, and statisticians from Harvard, MIT, Columbia and UC Berkeley + published several papers

**Research Intern, [Frank Lab: Nobel Laureate Joachim Frank, Columbia University, New York](#)**

September 2018 – November 2019

- **Achieved the highest resolution 3D reconstruction** of the 40S eukaryotic ribosome subunit (at  $1.5 \text{ \AA} \approx 0.15 \text{ nanometers}$ ) to reverse engineer the mechanism of protein synthesis and uncover how errors in cell growth and division can lead to cancer
- **Fine-tuned bioinformatics tools** to increase the accuracy of protein detection and reconstruction in noisy electron microscope images

**Machine Learning Project Lead, [Google Mentorship Program, Google, New York](#)**

October 2018 – June 2019

- **Led a Stuyvesant HS team** to develop a **LSTM-based ML model** w/ PyTorch capable of **understanding human emotions from voice intonations** for use in digital personal assistants, medical applications, and **improving accessibility for those with speech disabilities**

## **SELECTED RESEARCH PUBLICATIONS (GOOGLE SCHOLAR)**

- Chowdhury S., Frasca M. G., Wu H., Lucchini M., Shuffrey L. C., Sania A., Malette C., Odendaal H. J., Myers M. M., Fifer W. P., Pini N. (2022). [A Novel Method for the Extraction of Fetal ECG Signals from Wearable Devices](#). 44th Int'l IEEE Engineering in Medicine & Bio Conf. (EMBC).
- Mahmud, A. S., Chowdhury, S., Sojib, K. H., Chowdhury, A., Quader, M. T., Paul, S., ... & Buckee, C. O. (2021). [Participatory syndromic surveillance as a tool for tracking COVID-19 in Bangladesh](#). *Epidemics*, 35, 100462.
- Chadwick, F., Clark, J., Chowdhury, S., ... & Sania, A. (2022). [Combining Rapid Antigen Testing and Syndromic Surveillance Improves Sensitivity and Specificity of COVID-19 Detection: A Community-Based Prospective Diagnostic Study](#). *Nature Communications*, 13, 2877.
- Ferguson E. A., Brum, E., Chowdhury, A., Chowdhury, S., Kundegorski, M., ... & Hampson, K. (2022). [Modelling how face masks and symptoms-based quarantine synergistically and cost-effectively reduce SARS-CoV-2 transmission in Bangladesh](#). *Epidemics*, 40, 100592.
- Sania, A., Mahmud, A. S., Alschuler, D. M., Urmi, T., Chowdhury, S., Lee, S., Mostari, S., Shaikh, F. Z., ... & Arifeen, S. E. (2023). [Risk factors for COVID-19 mortality among Telehealth patients in Bangladesh: A prospective cohort study](#). *PLOS Global Public Health*, 3(6), e0001971.

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### ENTREPRENEURIAL EXPERIENCE

#### **Executive Director & Founder, [Reach4Help, Montréal, Canada](#)**

March 2020 – present

- **Leading a team of 30+** in coordinating **humanitarian aid logistics for disaster response in over 38 countries**, working closely with UN agencies, governments, and civil society organizations to ensure that aid reaches remote, vulnerable, and hard-to-access areas
- **Developed an open-source [global map of aid](#)**, serving as the backbone for logistical coordination of volunteer help for **over 10,000 organizations** through the COVID-19 pandemic worldwide, earthquakes in Mexico, wildfires in California/US West Coast, invasion of Ukraine, floods/cyclones in Bangladesh/Pakistan, earthquakes in Türkiye/Syria, etc.
- **Raised \$120K** from Google for Nonprofits and **secured \$106K** in in-kind donations from Google, Slack, Algolia, etc.
- **Helped raise €170K+** for medical relief and civilian defense in Ukraine + **provided aid for 58K+ households** during floods in Bangladesh, Pakistan, and India, partnering with the World Economic Forum and NGOs such as BRAC, Kandari, etc.

#### **Global Shaper, Curator & Climate Reality Leader, [World Economic Forum, Geneva, Switzerland](#)**

August 2021 – present

- **Selected as the youngest Global Shaper** by the World Economic Forum for work on Reach4Help
- **Led [SupportUkraineNow](#) projects** as U.S. co-ambassador, reaching **1M+ Ukrainians** on refugee aid, fundraising and mental health support
- **Awarded a grant from Al Gore's Climate Reality Project** to scale **education policy solutions**, impacting **1800+ students** in Bangladesh by spearheading climate action and education initiatives through the Dhaka Hub, including **plastic recycling, tree planting, and climate education workshops**, with efforts to expand these initiatives in New York
- **Elected to be Curator of the New York City Queens Hub** for global representation and local leadership on hub projects, focusing on **youth education empowerment**, partnering with local NGOs and tech companies like Google to equip the underserved and rich immigrant communities of Queens with **skills for tech and policy engagement**

#### **Software Developer, [Migrant Nation Foundation, The Netherlands / UNDP Bangladesh](#)**

October 2019 – June 2020

- **Developed an e-commerce marketplace** for **11K+ Rohingya refugees** in Bangladesh, enabling them to **earn a living wage** and **achieve financial independence** by producing and selling products to consumers worldwide on Amazon, Alibaba, and other international markets
- **Lived and worked in the camps** with several United Nations agencies including UN Development Programme (UNDP), UN High Commissioner for Refugees (UNHCR), and the World Food Programme (WFP)
- **Built a mobile app to pay refugees hourly wages** in accordance with the International Labour Organization's decent work practices

### HONORS & AWARDS

- |   |       |
|---|-------|
| • NYC Queens Hub Curator, Global Shapers, World Economic Forum  | 2024  |
| • Future Climate Leader, The Aspen Institute  | 2023  |
| • Climate Reality Corp Leadership Award, awarded by former U.S. Vice President Al Gore                      | 2022  |
| • Dean's List (All Semesters), Columbia University  | 2022– |
| • Distinguished New Student Scholarship, Columbia University  | 2022  |
| • Daniel Bergstein Memorial Scholarship, Columbia University  | 2019  |
| • AP Scholar w/ Distinction, College Board  | 2019  |
| • Finalist, The Gates Scholarship   | 2019  |
| • Elizabeth Piper Scholarship, Columbia University Double Discovery Center                                  | 2018  |
| • Stand Up to Cancer Award for Lung Cancer Research, New York Genome Center & Weill Cornell Medical College | 2017  |

### SPEAKING ENGAGEMENTS, EVENTS & PRESS COVERAGE

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|---|-----------|
| • Curator, <a href="#">Global Shapers Annual Summit 2024</a> organized by the <b>World Economic Forum</b> in <b>Geneva, Switzerland</b>                       | July 2024 |
| • Panelist, <a href="#">"Bringing Health and Equity into Climate Action"</a> organized by <b>Accenture</b> and <b>World Economic Forum</b> in <b>New York</b> | Sep 2023  |
| • Speaker, <a href="#">Princeton University's Youth Climate &amp; Conservation Summit (YCCS)</a> in <b>Princeton, New Jersey</b> on climate finance           | Apr 2023  |
| • Speaker, <a href="#">The Aspen Institute's Future Leaders Climate Summit</a> in <b>Miami, Florida</b> on climate public policy leadership                   | Mar 2023  |
| • Lead presenter and author, <a href="#">International Society for Developmental Psychobiology (ISDP) Conference</a> in <b>San Diego, California</b>          | Nov 2022  |
| • Presenter, <a href="#">"The Roadmap to Resources: How Reach4Help Leads People in Need"</a> at <b>Google HQ</b> in <b>Mountain View, California</b>          | Oct 2022  |
| • Speaker, <a href="#">International Youth Conference</a> on entrepreneurship and public policy advocacy in <b>Cambridge, Massachusetts</b>                   | Sep 2022  |
| • Speaker, <a href="#">Climate Changemakers Digital Innovation for Youth Conference</a> at the <b>United Nations Headquarters</b> in <b>New York</b>          | Sep 2022  |
| • Lead presenter and first author, <a href="#">44th Int'l IEEE Engineering in Medicine &amp; Biology Conference (EMBC)</a> in <b>Glasgow, Scotland</b>        | Jul 2022  |
| • Exclusive feature in <a href="#">The Daily Star</a> , the most widely circulated English newspaper in <b>Bangladesh</b>                                     | Mar 2022  |

**PROGRAMMING LANGUAGES:** Python, R, JavaScript/TypeScript, MATLAB, Java, C++, Rust, Dart, SQL

**SPOKEN LANGUAGES:** Bangla (native), Spanish, Latin, Mandarin Chinese (int.)